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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/634,777	08/06/2003	Satoshi Arakawa	Q76144	7626
23373	7590	01/14/2004	EXAMINER	
SUGHRUE MION, PLLC			HANNAHER, CONSTANTINE	
2100 PENNSYLVANIA AVENUE, N.W.			ART UNIT	PAPER NUMBER
WASHINGTON, DC 20037			2878	

DATE MAILED: 01/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/634,777	ARAKAWA, SATOSHI	
	Examiner	Art Unit	
	Constantine Hannaher	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/385,443.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION**Information Disclosure Statement**

1. Since the information disclosure statement submitted August 6, 2003 is utterly incapable (twice) of correctly identifying any relevant earlier application which might be relied upon for an earlier effective filing date under 35 U.S.C. 120, no reliance on 37 CFR 1.98(d) to avoid the provision of copies is possible.
2. In accordance with MPEP § 609.I.A.2, the examiner acknowledges consideration of information which has been considered by the Office in a parent application when examining this continuing application. Such information does not include the four documents in the NPL section of the listing submitted August 6, 2003, evidence of consideration for which was properly refused in the parent application.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2-5, 10, 11, and 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Lee et al.* (US005563421A) and *Hejazi* (US005554850A) and *Bueno et al.* (US005594253A).

With respect to independent claim 2, *Lee et al.* discloses a radiation image detecting system 10 (Fig. 1) comprising a solid radiation detector comprising a conversion means 8 which converts radiation bearing thereon image information to electric charges and a two-dimensional image detecting means which detects the electric charges obtained by the conversion (the act performed by

the means which converts). The problem of high frequency components of image information not lower than the Nyquist frequency manifesting themselves as image information at lower frequencies is sufficiently well known in the art of detecting radiation images¹ that an anti-aliasing birefringent blur filter is routine in optical apparatus². Hejazi discloses a radiation image detecting system (Fig. 2) comprising a two-dimensional image detecting means **18** (column 3, lines 11-14 and column 4, lines 1-2) in which the improvement comprises fiber optic scintillating plate **16**. Plate **16** in the system of Hejazi serves as a high frequency component attenuation means because the tilt of the rods **10** therein allows x-rays to be absorbed at various depths in the plate **16** yet x-ray photons from the same direction from object **14** will generate scintillations which arrive at different second ends **21**. The image plane **17** will no longer be composed of well-defined discrete pixels (as it would without tilt of the rods **10**) and some blurring will be introduced. Therefore, high frequency components of the image information from object **14** are attenuated. In view of the improved image detecting afforded by the suggestion of Hejazi in minimizing aliasing, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Lee *et al.* to comprise a high frequency component attenuation means therein. The specific level of noise achieved by the inclusion of a high frequency component attenuation means in the system of Lee *et al.* as suggested by the plate **16** in Hejazi is a choice within the ordinary skill in the art in view of the desired performance. To the extent that scintillating plate **16** in the system of Hejazi is not “a phosphor layer” in view of any distinctions between scintillators and phosphors, Bueno *et al.* discloses that the combination **10** of a scintillating fiber optic plate with a phosphor layer is

¹ Applicant's representative's seasonable traversal of this statement was found inadequate in the Office action mailed December 24, 2002 in the parent application. Accordingly, this statement is taken to be admitted prior art and is no longer an issue before the Examiner. MPEP § 2144.03.

particularly effective over the use of either apparatus component alone. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the image detecting system of Lee *et al.* to comprise the tilted fiber optic scintillating plate suggested by Hejazi and a phosphor layer as suggested by Bueno *et al.*

With respect to dependent claim 3, Bueno *et al.* discloses that making a phosphor layer “removable” from a radiation image detecting system is known (column 14, lines 31-33).

With respect to dependent claim 4, Bueno *et al.* provides suggestion for the choice of the thickness (column 10, lines 31-41) and/or the material (Table 2) of the suggested phosphor layer. Such choice constitutes an adjustment justifying the use of the recited term “variable.”

With respect to dependent claim 5, Lee *et al.* discloses a transparent conductor **9** (column 4, lines 31-36) disposed over the conversion means **8**.

With respect to dependent claim 10, the plate **16** in Hejazi comprises an adjustable thickness in view of the desire to optimize the angles A, B dependent on at least the thickness of the plate (column 3, lines 34-39).

With respect to dependent claim 11, the conversion means **8** of Lee *et al.* converts radiation bearing thereon image information directly into electric charges (column 6, lines 61-63).

With respect to independent claim 6, Lee *et al.* discloses a radiation image detecting system **10** (Fig. 1) comprising a conversion means **8** for converting radiation bearing thereon image information to electric charges and an arrayed detecting means which detects the electric charges obtained by the conversion means **12**. The problem of high frequency components of image information not lower than the Nyquist frequency manifesting themselves as image information at

² Applicant's representative's seasonable traversal of this statement was found inadequate in the Office action mailed December 24, 2002 in the parent application. Accordingly, this statement is taken to be admitted prior art and is no longer an issue before the Examiner. MPEP § 2144.03.

lower frequencies is sufficiently well known in the art of detecting radiation images that an anti-aliasing birefringent blur filter is routine in optical apparatus. Hejazi discloses a radiation image detecting system (Fig. 2) comprising an arrayed detecting means **18** (column 3, lines 11-14 and column 4, lines 1-2) in which the improvement comprises fiber optic scintillating plate **16**. Plate **16** in the system of Hejazi serves as a high frequency component attenuation means because the tilt of the rods **10** therein allows x-rays to be absorbed at various depths in the plate **16** yet x-ray photons from the same direction from object **14** will generate scintillations which arrive at different second ends **21**. The image plane **17** will no longer be composed of well-defined discrete pixels (as it would without tilt of the rods **10**) and some blurring will be introduced. Therefore, high frequency components of the image information from object **14** are attenuated. In view of the improved image detecting afforded by the suggestion of Hejazi in minimizing aliasing, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Lee *et al.* to comprise a high frequency component attenuation means therein. The specific level of noise achieved by the inclusion of a high frequency component attenuation means in the system of Lee *et al.* as suggested by the plate **16** in Hejazi is a choice within the ordinary skill in the art in view of the desired performance. To the extent that scintillating plate **16** in the system of Hejazi is not “a phosphor layer” in view of any distinctions between scintillators and phosphors, Bueno *et al.* discloses that the combination **10** of a scintillating fiber optic plate with a phosphor layer is particularly effective over the use of either apparatus component alone. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the image detecting system of Lee *et al.* to comprise the tilted fiber optic scintillating plate suggested by Hejazi and a phosphor layer as suggested by Bueno *et al.*

With respect to dependent claim 7, Lee *et al.* discloses a transparent conductor **9** (column 4, lines 31-36) disposed over the conversion means **8**.

With respect to independent claim 8, Lee *et al.* discloses a radiation image detecting system **10** (Fig. **1**) comprising a radiation-to-electric charge converter **8** and an array of charge detectors **12** detecting the electric charges obtained by the converter (column 6, lines 61-67). The problem of high frequency components of image information not lower than the Nyquist frequency manifesting themselves as image information at lower frequencies is sufficiently well known in the art of detecting radiation images that an anti-aliasing birefringent blur filter is routine in optical apparatus. Hejazi discloses a radiation image detecting system (Fig. **2**) comprising an array **18** of charge detectors (column 3, lines 11-14 and column 4, lines 1-2) in which the improvement comprises fiber optic scintillating plate **16**. Plate **16** in the system of Hejazi serves as a high frequency component attenuation means because the tilt of the rods **10** therein allows x-rays to be absorbed at various depths in the plate **16** yet x-ray photons from the same direction from object **14** will generate scintillations which arrive at different second ends **21**. The image plane **17** will no longer be composed of well-defined discrete pixels (as it would without tilt of the rods **10**) and some blurring will be introduced. Therefore, high frequency components of the image information from object **14** are attenuated. In view of the improved image detecting afforded by the suggestion of Hejazi in minimizing aliasing, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Lee *et al.* to comprise a high frequency component attenuation means therein. The specific level of noise achieved by the inclusion of a high frequency component attenuation means in the system of Lee *et al.* as suggested by the plate **16** in Hejazi is a choice within the ordinary skill in the art in view of the desired performance. To the extent that scintillating plate **16** in the system of Hejazi is not “a phosphor layer” in view of any distinctions

between scintillators and phosphors, Bueno *et al.* discloses that the combination **10** of a scintillating fiber optic plate with a phosphor layer is particularly effective over the use of either apparatus component alone. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the image detecting system of Lee *et al.* to comprise the tilted fiber optic scintillating plate suggested by Hejazi and a phosphor layer as suggested by Bueno *et al.*

With respect to dependent claim 9, Lee *et al.* discloses a transparent conductor **9** (column 4, lines 31-36) disposed over the conversion means **8**.

Response to Submission(s)

5. The amendment filed August 6, 2003 has been entered. The amendment found in the transmittal is improper but moot.

Conclusion

6. This is a continuation of applicant's earlier Application No. 09/385,443. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be

calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Constantine Hannaher whose telephone number is (703) 308-4850. The examiner can normally be reached on Monday-Friday with flexible hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (703) 308-4852. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9318.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

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Constantine Hannaher
Primary Examiner